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DAE

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**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNAVOIDABLY UNDER 37 CFR 1.137(a)**

Docket Number (Optional)

4296-144 US

First Named Inventor: Harunori Hirao

Art Unit: 1625

Application Number: 09/919,024

Examiner: OH, Taylor Victor

Filed: July 31, 2001

Title: METHOD FOR STARTING UP REACTOR

Attention: Office of Petitions

**Mail Stop Petition**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

NOTE: If information or assistance is needed in completing this form, please contact Petitions  
Information at (703)305-9382.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

**APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION**

NOTE: A grantable petition requires the following items:

- (1) Petition fee;
- (2) Reply and/or issue fee;
- (3) Terminal disclaimer with disclaimer fee -- required for all utility and plant applications filed before June 8, 1995, and for all design applications; and
- (4) Adequate showing of the cause of unavoidable delay

**1. Petition fee**

☐ Small entity - fee \$ \_\_\_\_\_ (37 CFR 1.17(I)) Applicant claims small entity status..  
See 37 CFR 1.27.

☒ Other than small entity - fee \$ 110.00 (37 CFR 1.17(I)).

**2. Reply and/or fee**

A. The reply and/or fee to the above-noted Office action in the form of

RCE

(identify the type of reply):

- ☐ has been filed previously on \_\_\_\_\_  
☒ is enclosed herewith.

11/14/2003 AMONDAF1 00000145 09919024

01 FC:1452

110.00 OP

B. The issue fee of \$ \_\_\_\_\_

- ☐ has been paid previously on \_\_\_\_\_  
☐ is enclosed herewith.

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(Page 1 of 3)

This collection of information is required by 37 CFR 1.137(a) The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNAVOIDABLY UNDER 37 CFR 1.137(a)**

Docket Number (Optional)

4296-144 US

3. Terminal disclaimer with disclaimer fee

☒ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

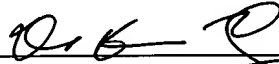
☐ A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$ \_\_\_\_\_ for a small entity of \$ \_\_\_\_\_ other than a small entity) disclaiming the required period of time enclosed herewith (see PTO/SB/63).

4. An adequate showing of the cause of the delay, and that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition under 37 CFR 1.137(a) was unavoidable, is enclosed.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorize on PTO-2038.**

November 10, 2003

Date

  
Signature

609 924 8555

Telephone Number:

Diane Dunn McKay

Typed or printed name

34,586

Registration Number, if applicable

Mathews, Collins, Shepherd & McKay, P.A.

Address

100 Thanet Circle, Suite 306, Princeton, NJ 08540

Address

Enclosures: ☒ Fee Payment

☒ Reply

☐ Terminal Disclaimer Form

☐ Additional sheets containing statements establishing unavoidable delay

☐ \_\_\_\_\_

**CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]**

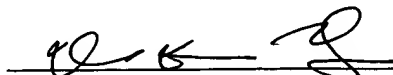
I hereby certify that this correspondence is being:

☒ deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: **Mail Stop Petition**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

☐ transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (703) 308-6916.

November 10, 2003

Date

  
Signature

Diane Dunn McKay

Typed or printed name of person signing certificate

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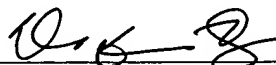
**OFFICE OF PETITIONS**

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED  
UNAVOIDABLY UNDER 37 CFR 1.137(a)**

NOTE: The following showing of the cause of unavoidable delay must be signed by all applicants or by any other party who is presenting statements concerning the cause of delay.

November 10, 2003

Date



Signature

34,586

Registration Number, if applicable

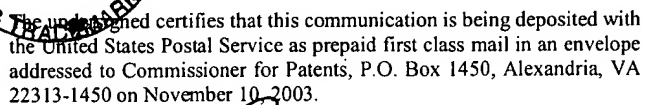
Diane Dunn McKay

Typed or printed name

(In the space provided below, please explain in detail the reasons for the delay in filing a proper reply)

Applicants received a Final Office Action dated April 9, 2003. On July 2, 2003, Applicants mailed a Request for Reconsideration to the United States Patent and Trademark Office ("PTO") in response to the April 9, 2003 Office Action, which was received by the PTO on July 7, 2003. A copy of Applicants' Acknowledgement Postcard, date stamped by the OIPE of the PTO is attached. On October 24, 2003, Applicants received an Advisory Action dated October 22, 2003, from the PTO. On November 3, 2003, Applicants' attorney spoke with Supervisor Examiner Alan Rotman. Examiner Rotman indicated that as the Advisory Action was mailed subsequent to the statutory six month date of October 9, 2003, accordingly, it would not be necessary for the Applicants to provide the requisite fee for submission of the Petition for Revival of an Application for Patent Abandoned Unavoidably Under 37 C.F.R. 1.137(a), as the PTO had not provided a response to Applicants' Request for Reconsideration until thirteen days after the statutory date of October 9, 2003 and that a Petition for Revival of an Application for Patent Abandoned Unavoidably Under 37 C.F.R. 1.137(a) should be filed.

*(Please attach additional sheets if additional space is necessary)*



Docket No. 4296-144 US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
HIRAO et al.

Serial No. 09/919,024

Filed: July 31, 2001

Title: METHOD FOR STARTING UP REACTOR

[illegible]

Group Art Unit: 1625

Examiner: OH, Taylor Victor

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

## COMMUNICATION

Sir:

Applicants wish to thank Examiner Alan Rotman for the courtesies extended during the teleconference of November 3, 2003.

Applicants hereby submit the attached Petition for Revival of an Application for Patent Abandoned Unavoidably Under 37 C.F.R. 1.137(a), a Request for Continued Examination, and a Petition for Extension of Time Under 37 C.F.R. 1.136(a).

Applicants received a Final Office Action dated April 9, 2003. On July 2, 2003, Applicants mailed a Request for Reconsideration to the United States Patent and Trademark Office ("PTO") in response to the April 9, 2003 Office Action, which was received by the PTO on July 7, 2003. A copy of Applicants' Acknowledgement Postcard, date-stamped by the OIPE of the PTO is attached. On October 24, 2003, Applicants received an Advisory Action dated

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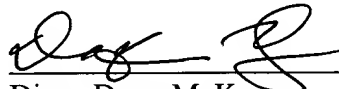
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Applicants hereby submit a Petition for Revival of an Application for Patent Abandoned Unavoidably Under 37 C.F.R. 1.137(a), a Request for Continued Examination, and a Petition for Extension of Time Under 37 C.F.R. 1.136(a). Applicants hereby submit the requisite fees for a Request for Continued Examination.

The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

Dated: November 10, 2003

  
\_\_\_\_\_  
Diane Dunn McKay  
Reg. No. 34,586  
Attorney for Applicant

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,024	07/31/2001	Harunori Hirao	4296-144	3715

7590 04/09/2003  
MATHEWS, COLLINS, SHEPHERD & GOULD, P.A.  
SUITE 306  
100 THANET CIRCLE  
PRINCETON, NJ 08540

EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
----------	--------------

1625

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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OFFICE OF PETITIONS

**Office Action Summary**

Application No.

09/919,024

Applicant(s)

HIRAO ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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**OFFICE OF PETITIONS**

***Final Rejection***

**The Status of Claims**

Claims 1-4 have been rejected.

**Claim Rejections-35 USC 112**

1. Applicants' argument filed 12/23/2002 have been fully considered but they are not persuasive.

The rejection of Claims 1, 2, and 4 has been maintained due to applicants' failure to modify in the amendment.

**Claim Rejections-35 USC 102**

*Rejection of Claims 1-4 under 35 U.S.C. 102(b) as being anticipated clearly by Takada et al (U.S. 4,203,906).*

The rejection of Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Takada et al (U.S. 4,203,906) ) is maintained for reasons of the record in paper no. 4.

***Response to Argument***

2. The applicants argue the following issue:

1. Takada et al does not disclose any step of causing raw material and molecular oxygen- containing gas to pass a range in which the concentration of the raw material is less than that of the lower explosion limit of the raw material and the concentration of oxygen is not less than the limiting oxygen concentration ;
2. there is no teaching in Takada of controlling conditions of a raw material and a molecular oxygen-containing gas in the start-up of a reactor and the advantages associated therewith .

The applicants' argument have been noted, but these arguments are not persuasive.

First, with regard to the first and second arguments, the Examiner has noted applicants' argument. However, the Takada et al reference does mention that a catalytic vapor phase oxidation process is generally exothermic and it is important to control the reaction temperature within a certain range (see col .1 ,lines 16-20) in order to avoid undesired combustion reactions (see col. 1 ,lines 35-37). Furthermore, In example 5, the reference does teach that a reaction gas composition of 7.0 % by volume of propylene, 12.6 % by volume of oxygen , 10 % by volume of steam and balance of inert

Art Unit: 1625

gas containing nitrogen gas is supplied to the catalyst stage (see col. 10 ,lines 17-21).

From the aboves, it becomes evident that the Takada et al process does imply the importance of the explosion limit of both raw and oxygen materials. Also, there is definitely a teaching in the Takada process of controlling conditions of the raw material and the molecular oxygen-containing gas in the start-up of the reactor.

Therefore, they read on the claimed invention.

Therefore, all the rejections are maintained.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1625

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 703-305-0809. The examiner can normally be reached on 8:30-5:00.

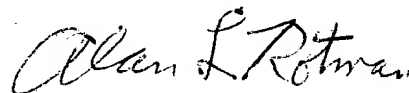
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman can be reached on 703-308-4698. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-2742 for regular communications and 703-305-7401 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.



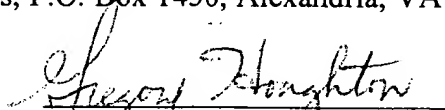
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April 6, 2003



ALAN L. ROTMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1600

The undersigned certifies that this communication is being deposited with the United States Postal Service as prepaid first class mail in an envelope addressed to Mail Stop: Non-Fee Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 2, 2003.

  
 Gregory C. Houghton

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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 In re Application of  
 Harunori Hirao et al.

Serial No. 09/919,024

Filed: July 31, 2001

For: Method for Starting Up Reactor  
 -----

Group Art Unit: 1625  
 Examiner: Taylor V. OH

Commissioner for Patents  
 Washington, D.C. 20231

SIR:

**REQUEST FOR RECONSIDERATION**

This response is submitted pursuant to the Final Office Action dated April 9, 2003, to which a response is due July 9, 2003. Claims 1-4 are under consideration.

**CLAIM REJECTION UNDER 35 U.S.C. §112**

Claims 1, 2 and 4 stand rejected under 35 U.S.C. §112, first paragraph. The Office Action asserts that "the specification, while being enabling for propane, propylene, acrolein, isobutylene, mathacrolein as a raw material, does not reasonably provide enablement for all the raw material in the chemical field." The Office Action also asserts that "the specification, while being enabling for a shell and tube reactor, as a reactor, does not reasonably provide enablement for all the reactors in the chemical field."

As previously argued, Applicants respectfully point out that claims 1, 2 and 4 include a recitation of "a raw material to be oxidized" in a catalytic gas phase oxidation reaction, not any "raw material" in the chemical field. Applicants contend that the specification not only provides working examples of "raw materials to be oxidized," such as propane, propylene, acrolein, isobutylene, mathacrolein, but also provides guidance and direction on how to determine whether a particular compound is "a raw material to be oxidized." For example, Figure 4 describes the oxidation profile of "raw materials to be oxidized" in the presence of oxygen, including lower explosion oxygen limit for "raw materials to be oxidized." One of ordinary skill in the art would expect that "raw materials to be oxidized" would have oxidation profiles similar to that of Figure 4. Moreover, based on the disclosure of the present application, one of ordinary skill in the art would also be able to determine what does "a raw material to be oxidized" in the claimed process include. In addition, one of ordinary skill in the art would reasonably correlate the oxidation profiles of propane and propylene with those of all other "raw materials to be oxidized." Furthermore, as shown in col. 1, lines 25-35 of Takada et al, there are many raw materials for the catalytic gas phase oxidation reaction which is further evidence that those skilled in the art would understand what raw materials can be used in the present invention based on the oxidation profiles of such raw materials. Therefore, the present specification provides enabling disclosure to the recitation of "a raw material to be oxidized" in claims 1, 2 and 4 because "as long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. §112 is satisfied." See M.P.E.P. 2164.01(b) and *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

With regard to the Examiner's objection to the use of the term "reactor" in claims 1, 2 and 4, Applicants respectfully point out that the present application claims "a reactor for the reaction of catalytic gas phase oxidation," not "all reactors in the chemical field" (emphasis added). Applicants contend that the present specification provides enabling disclosure to the recitation of "a reactor for the reaction of catalytic gas phase oxidation" in claims 1, 2 and 4. Specifically, the specification provides working examples of

"reactors for the reaction of catalytic gas phase oxidation" such as shell and tube reactors. It also provides guidance and direction as to what type of reactors can be used "for the reaction of catalytic gas phase oxidation." Therefore, the present specification provides enabling disclosure to the recitation of "a reactor for the reaction of catalytic gas phase oxidation" in claims 1, 2 and 4 under the standard of M.P.E.P. 2164.01(b).

In addition to the above, under MPEP 2164.03, the amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art. *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). The "amount of guidance or direction" refers to that information in the application, as originally filed, that teaches exactly how to make or use the invention. The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification. The "predictability or lack thereof" in the art refers to the ability of one skilled in the art to extrapolate the disclosed or known results to the claimed invention. If one skilled in the art can readily anticipate the effect of a change within the subject matter to which the claimed invention pertains, then there is predictability in the art.

Further, in order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). As stated by the court "it is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with

acceptable evidence or reasoning which is inconsistent with the contested statements.”  
439 F2d at 224, 169 USPQ at 370.

Furthermore, the evidence provided by applicant need not be conclusive but merely convincing to one skilled in the art. *In re Brandstadter*, 484 F.2d 1395, 1406-07, 179 USPQ 286, 294 (CCPA 1973).

The Examiner has not provided any evidence as to why those skilled in the art would not understand, based on the oxidation profiles of raw materials and teachings from prior art, such as Takada et al, how to use the present invention. Also, because the knowledge and use of oxidative states of raw materials is high, Applicants do not need to include a laundry list of raw materials in the present invention nor limit the scope to those particular raw materials listed in the present invention.

Based on the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. 112, first paragraph, with respect to claims 1, 2 and 4 be withdrawn.

#### CLAIM REJECTION UNDER 35 U.S.C. 112

Claims 1, 2 and 4 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action objects to the use of the phrases “a raw material,” “the concentration of raw material is less than the concentration of the lower explosion limit of said raw material” and “the concentration of oxygen is not less than the limiting concentration.”

As stated in Applicants’ previous response to the enablement rejection, claims 1, 2 and 4 recite “a raw material to be oxidized,” not any “raw material.”

Applicants would like to direct the Examiner’s attention to M.P.E.P. 2173.05(b) which states that “the meaning of a term used in the claim should be apparent from the prior art or from the specification” and “accessibility of the claimed language depends on

whether one of ordinary skill in the art would understand what is claimed, in light of the specification."

In this case, the meaning of the phrases "a raw material to be oxidized," "the concentration of raw material is less than the concentration of the lower explosion limit of said raw material" and "the concentration of oxygen is not less than the limiting concentration" are clear to one of ordinary skill in the art in light of the specification. Specifically, one of ordinary skill in the art would understand the term "a raw material to be oxidized" as defining those "raw materials" that can be oxidized and show an oxidation profile similar to that of Figure 4. Moreover, as defined on page 11, lines 4-7 of the present specification, the phrase "the concentration of raw material is less than the concentration of the lower explosion limit of said raw material" means "the lowest possible concentration of the raw material in the composition of the gas forming the explosion range in the oxidation profiles similar to those of Figures 1 and 4." The phrase "the concentration of oxygen is not less than the limiting concentration" is defined as "the lowest possible concentration of oxygen in the composition of the gas forming the explosion range." Furthermore, each raw material to be oxidized has its characteristic values of "lower explosion limit" and "the limiting concentration of oxygen" and one of ordinary skill in the art would clearly understand what is claimed in claims 1, 2 and 4 by using these phrases.

In addition to the above, the same statutory argument incorporating MPEP 2164.03, 2164.04 and 2164.05 applied toward the 35 U.S.C. §112, first paragraph rejection above is applicable here.

Based on the foregoing, Applicants respectfully request that the 35 U.S.C. §112, second paragraph rejection with respect to claims 1, 2 and 4 be withdrawn.

#### CLAIM REJECTION UNDER 35 U.S.C. §102(b)

Claims 1-4 stand rejected under 35 U.S.C. §102(b) as being anticipated by Takada et al., U.S. Patent No. 4,203,906 ("Takada").

Applicants respectfully disagree with this ground of rejection. A rejection under 35 U.S.C. §102(b) is only proper when directed toward an invention that is *identically* disclosed or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. Applicants would like to point out that the claimed invention is not *identically* disclosed or described according to 35 U.S.C. §102(b). The claimed invention is directed to a method of starting up a reactor for catalytic gas phase oxidation reaction and Takada does not disclose any such method. Takada discloses a catalytic vapor phase oxidation process using a fixed bed shell and tube heat exchange type of reactor.

In contrast to the invention defined by the present claims, Takada does not disclose any steps of (i) a method for starting up the reactor and (ii) causing said raw material and said molecular oxygen-containing gas to pass a range in which the concentration of said raw material (excluding the concentration of said raw material at 0 vol. %) is less than the concentration of the lower explosion limit of said raw material and the concentration of oxygen is not less than the limiting oxygen concentration.

Applicants describe, in Fig. 4 and page 4, lines 1-18 of the specification, conventional ways of controlling the concentrations of oxygen, a raw material and steam as to avoid undesired combustion reactions. Since the reactor is filled with air prior to its' starting, conventionally it is necessary to supply expensive diluting gases such as nitrogen gas and carbon dioxide gas in large amounts and to control the concentration of oxygen with high-grade technology. See page 4, line 19 to page 5, line 5 in the specification.

The examiner also states that in example 5 of the Takada reference, a reaction gas composition of 7.0% by volume of propylene, 12.6% by volume of oxygen, 10% by volume of steam and balance of inert gas containing nitrogen gas is supplied to the catalyst stage (col. 10, lines 17-21). However, the issue of the present invention is whether or not (i) a raw material and a molecular oxygen-containing gas are controlled in order to pass a range in which the concentration of the raw material is less than the

concentration of the lower explosion limit of the raw material and the concentration of the lower explosion limit of the raw material and the concentration of oxygen is not less than the limiting oxygen concentration (ii) during starting up the reactor. Namely, as mentioned in Fig. 1 of the specification, the methods of the present invention are identified by passing points of ② → ③ → ④ → ① to avoid the combustion. In contrast, Takada only shows the result of the concentrations of the reaction gas composition in a steady state. Furthermore, Takada does not teach the process of controlling the concentrations of the reaction gas compositions during starting up the reactor.

Therefore, Takada does not disclose how to control the concentrations of a raw material and a molecular oxygen containing gas in the above mentioned range according to the present invention.

Next, the Examiner concludes, based on the Takada gas composition of 7.0% by volume of propylene, 12.6% by volume of oxygen, 10% by volume of steam and the balance of inert gas containing nitrogen gas being supplied to the catalyst stage, that Takada implies the importance of the explosion limit of both raw materials and oxygen and therefore Takada definitely teaches the process of controlling conditions of the raw material and the molecular oxygen-containing gas in the start-up of the reactor.

Applicants traverse because, as mentioned above, there are numerous methods for avoiding combustion. The methods described in Applicant's specification, under *Background of the Invention*, are all invariably uneconomical because they require large amounts of expensive diluting gases. Also, they are unfavorable because they require a large supply of thermal energy for the generation of the steam and efforts to save the diluting gas is likewise a disadvantage that inevitably increases the reaction time. See page 6, lines 2-9 in the specification.

Takada only relates to a process for catalytic vapor phase oxidation which comprises using a fixed-bed shell and tube heat exchanger type reactor divided into two

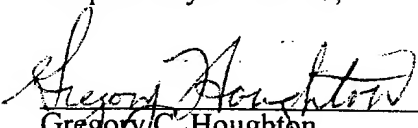
zones, supplying feed gas to the tubes and conducting exothermic catalytic vapor phase oxidation while controlling the temperatures for heat transfer medium in each of the zones so that the temperature difference between each of the zones can be maintained between 0-100° C.

Further to the reasons cited above, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Based on the foregoing, Takada does not *identically* disclose or describe the present invention. Accordingly, Applicants respectfully request that the rejection of claims 1-4 under 35 U.S.C. §102(b) as being anticipated by Takada et al., U.S. Patent No. 4,203,906 ("Takada") be withdrawn.

The application is now believed to be in a condition for allowance and an early notification thereof is respectfully requested. The Examiner is invited to contact the undersigned should she believe this would expedite prosecution of this application. It is believed no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

  
\_\_\_\_\_  
Gregory C. Houghton  
Reg. No. 47,666  
Attorney for Applicant(s)

DATE: June 4, 2003  
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TITLE: Method for Starting Up Reactor

CASE NO.: 4296/144 US

SERIAL NO.: 09/919,024

The Patent and Trademark Office acknowledges, and has stamped hereon, the date of the receipt of the items checked below and acknowledges authority to charge all fees to Account 13-2165.

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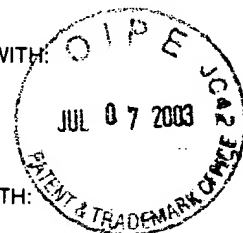
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MATHEWS, COLLINS, SHEPHERD & MCKAY

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,024	07/31/2001	Harunori Hirao	4296-144	3715

7590 10/22/2003

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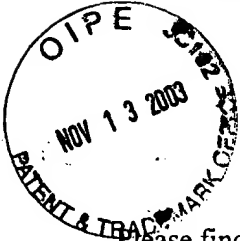
EXAMINER

OH, TAYLOR V

ART UNIT PAPER NUMBER

1625

DATE MAILED: 10/22/2003



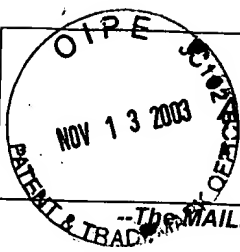
Please find below and/or attached an Office communication concerning this application or proceeding.

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### Advisory Action

Application No.

09/919,024

Applicant(s)

HIRAO ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 07 July 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

#### PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: see pages 2-3.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 1-4.

Claim(s) withdrawn from consideration: \_\_\_\_\_

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
10. ☐ Other: \_\_\_\_\_

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It is noted that applicants have filed an Amendment after the Final Rejection; applicants' attorney has addressed the issues of record or rebutted the claim rejections 1-2, and 4 under 35 USC 112 and the claim rejections 1-4 under 35 USC 102 (b). However, applicants' attorney did not reduce the issue and the scope of claims 1-2, and 4 with respect to the particular claimed language "a raw material to be oxidized".

Furthermore, concerning the claim rejections 1-4 under 35 USC 102 (b) based on the Takada reference, applicants argue the followings:

1. the Takada has failed to disclose any step of causing the raw material and molecular oxygen-containing gas to pass a range in which the concentration of the raw material is less than the concentration of the lower explosion limit of the raw material and the concentration of oxygen is not less than the limiting oxygen concentration.
2. there is no teaching in Takada of controlling conditions of a raw material and a molecular oxygen-containing gas in the start-up of a reactor and the advantages associated therewith .

First, with regard to the first and second arguments, the Examiner has noted applicants' argument. However, the Takada et al reference does mention that a catalytic vapor phase oxidation process is generally exothermic and it is important to control the reaction temperature within a certain range (see col.1 ,lines 16-20) in order to avoid undesired combustion reactions (see col. 1 ,lines 35-37). Furthermore, In example 5, the reference does teach that a reaction gas

Art Unit: 1625

composition of 7.0 % by volume of propylene, 12.6 % by volume of oxygen , 10 % by volume of steam and balance of inert gas containing nitrogen gas is supplied to the catalyst stage (see col. 10 ,lines 17-21). From the aboves, it becomes evident that the Takada et al process does imply the importance of the explosion limit of both raw and oxygen materials. Also, there is definitely a teaching in the Takada process of controlling conditions of the raw material and the molecular oxygen-containing gas in the start-up of the reactor. Therefore, they read on the claimed invention. Therefore, the issue still stands and the rejection of the claims is maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 703-305-0809. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman can be reached on 703-308-4698. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-2742 for regular communications and 703-305-7401 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

*Taylor Victor Oh*  
10/18/03

*Alan L. Rotman*  
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SUPERVISORY PATENT EXAMINER  
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